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NEW VARIABLES IN THE FIELD OF EUVE J2114+503

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We monitored the field of the unidentified extreme-UV source, J2114+503 (Bowyer et al. 1996), for optically variable stars, using the 1-m telescope at the Wise observatory, with Tektronix 1024×1024 CCD. A total of 42 frames of 600 sec. each, from June 17, 1998 to January 21, 1999 with the Kron R filter were taken. The images were reduced in the standard way, using the IRAF package. The DAOPHOT task (Stetson 1987) was run on each image to automatically select and measure the magnitudes of all stars. Two iterations were used in selecting the PSF stars and two subtraction iterations were performed on each image (for details see Massey & Davis 1992). 577 stars were measured in at least 21 frames. We list here 5 certain variables in this field.

Table 1 lists the variables with their USNO-A2.0 name, if available, coordinates (equinox J2000.0), number of measurements, mean calibrated R magnitude and its error, B–R color index and its error, variability standard deviation and remarks. The astrometric reduction was done relative to the USNO SA1.0 catalog (Monet et al. 1996).

The magnitudes were calibrated using standard stars from Landolt (1992). The stars in the field selected as standards are listed in Table 2 with their USNO-A2.0 name, J2000.0 coordinates for epoch J1998.916, R magnitude, B magnitude and their standard deviation in the 42 frames.

Table 1: New variables in the field of EUVE J2114+503.

No.	USNO-A2 Name	R.A. J2000.0	Dec.	#	$\langle R \rangle$	B–R	StD	Remarks
1	1350-13710453	21:14:37.28	+50:15:28.6	42	15.405 ±0.012	2.590 ±0.025	0.04	
2		21:14:24.61	+50:13:51.6	36	17.047 ±0.021	3.006 ±0.078	0.11	
3	1350-13708542	21:14:33.68	+50:23:50.3	37	15.110 ±0.015	2.775 ±0.020	0.07	$P = 0^d 23973$
4	1350-13713133	21:14:42.46	+50:23:33.5	39	17.779 ±0.022	1.842 ±0.100	0.12	Flares?
5	1350-13695867	21:14:09.50	+50:14:07.4	24	16.235 ±0.019		0.08	

Table 2: List of standard stars in the field of EUVE J2114+503.

No.	USNO-A2 Name	R.A. J2000.0	Dec.	R	B	StD
s1	1350-13707363	21:14:31.28	+50:21:08.0	14.970 ± 0.016	17.189 ± 0.012	0.011
s2	1350-13710066	21:14:36.61	+50:19:31.6	15.029 ± 0.015	17.476 ± 0.010	0.007
s3	1350-13709893	21:14:36.19	+50:19:11.0	15.128 ± 0.017	19.166 ± 0.031	0.008
s4	1350-13709080	21:14:34.68	+50:18:19.3	15.184 ± 0.017	19.141 ± 0.026	0.009
s5	1350-13706971	21:14:30.53	+50:21:23.3	15.233 ± 0.016	17.553 ± 0.011	0.007
s6	1350-13708650	21:14:33.86	+50:18:59.5	15.312 ± 0.017	17.876 ± 0.016	0.008
s7	1350-13708934	21:14:34.51	+50:20:28.1	15.481 ± 0.015	17.978 ± 0.013	0.005
s8	1350-13708113	21:14:32.79	+50:20:33.4	15.790 ± 0.016	18.557 ± 0.023	0.009
s9	1350-13711663	21:14:39.58	+50:21:53.4	15.822 ± 0.015	18.220 ± 0.019	0.008
s10	1350-13710422	21:14:37.24	+50:22:01.3	15.967 ± 0.015	18.868 ± 0.022	0.007
s11	1350-13711044	21:14:38.50	+50:23:42.0	16.077 ± 0.010		0.009
s12	1350-13711902	21:14:40.03	+50:23:36.6	16.193 ± 0.015	18.915 ± 0.024	0.008
s13	1350-13714467	21:14:45.07	+50:23:14.2	16.594 ± 0.017	18.989 ± 0.025	0.008

The third star in Table 1 (USNO-A2.0 #1350-13708542) shows periodic variation with a period of about 6 hours and a peak to peak amplitude of 0.160 ± 0.047 magnitude in R. The folded light curve of this star is given in Figure 1.

Finding chart for the new variables and standard stars is displayed in Figure 2. The variables are designated with circles while the standard stars are designated with boxes.

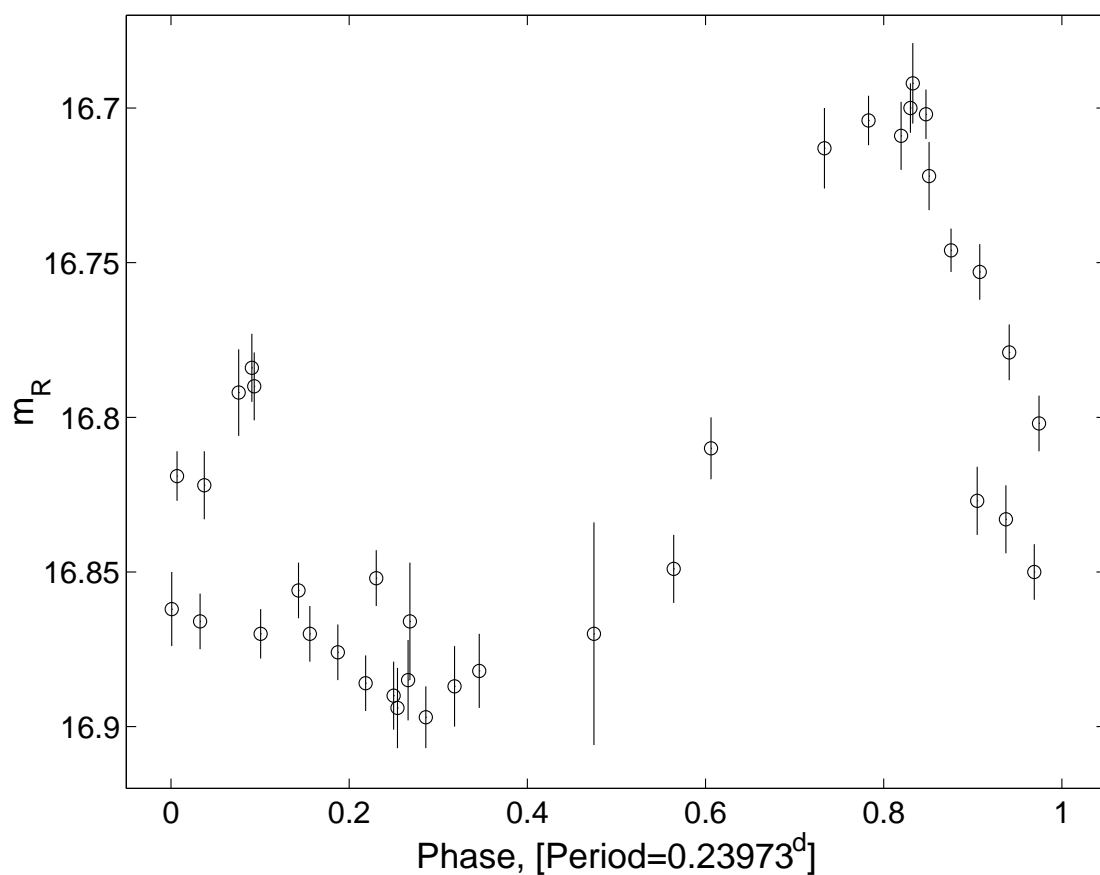


Figure 1. Folded light curve of USNO-A2.0 #1350-13708542

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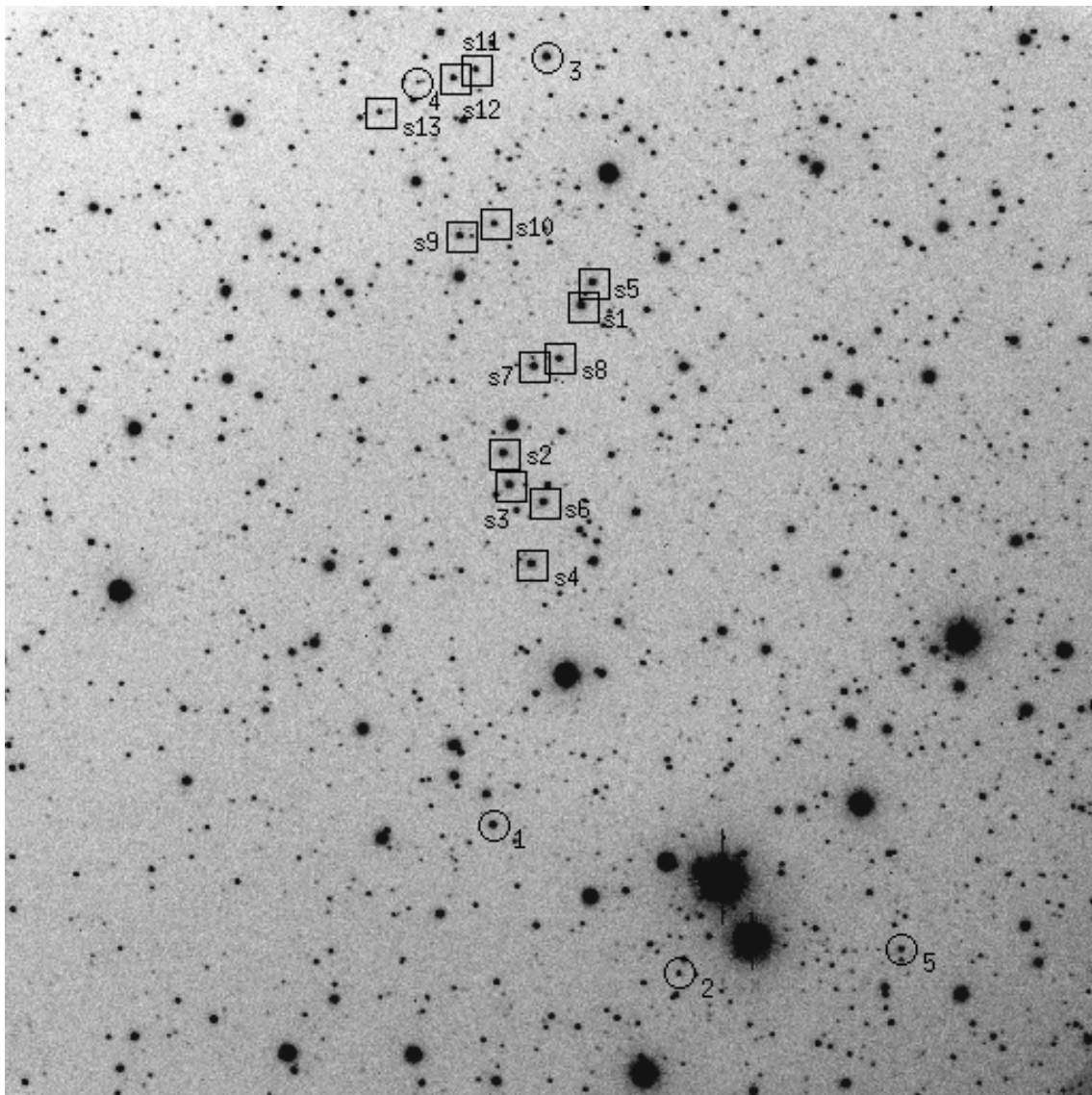


Figure 2. Finding chart of the EUVE J2114+503 field